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Response to Notification of Non-Compliant Appeal Brief (1 sheet)

Appeal Brief Under 37 C.F.R. §41.37 (32 sheets)

Appendix A (4 sheets)

Appendix B (1 sheet)

Appendix C (1 sheet)

Application Number 09/867,803  
Confirmation No.: 6606  
Filing Date: 31 May 2001  
Document Submission Date: 15 June 2007

Art Unit: 2166  
Examiner: Pham, Khanh B.  
Inventor: Choi, Lawrence  
Docket: 1005-006

15 Jun 2007

Date

Kelly B. Smoker

Name of Certifier

Kelly B. Smoker

Signature of Certifier

**PATENT**

**Application # 09/867,803**

**Attorney Docket # 1005-006**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant(s) : Lawrence J. Choi et al.  
Application # : 09/867,803  
Confirmation # : 6606  
Filed : 31 May 2001  
Application Title : METHOD AND SYSTEM FOR CLUSTERING  
OPTIMIZATION AND APPLICATIONS  
Art Unit # : 2166  
Latest Examiner : Khanh B. Pham  
Docket No. : 1005-006

**Mail Stop Appeal Brief-Patents**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

**RESPONSE TO NOTIFICATION OF NON-COMPLIANT APPEAL BRIEF**

Sir:

The Appeal Brief included herein is revised responsive to a Notification of Non-Compliant Appeal Brief dated 18 May 2007.

**PATENT****Application # 09/867,803****Attorney Docket # 1005-006****IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant(s) : Lawrence J. Choi et al.  
Application # : 09/867,803  
Confirmation # : 6606  
Filed : 31 May 2001  
Application Title : METHOD AND SYSTEM FOR CLUSTERING  
OPTIMIZATION AND APPLICATIONS  
Art Unit # : 2166  
Latest Examiner : Khanh B. Pham  
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**Mail Stop Appeal Brief-Patents**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**APPEAL BRIEF UNDER 37 C.F.R. §41.37**

Sir:

The Applicant respectfully submits this Appeal Brief in response to the Office Action of 6 June 2006 rejecting each of the pending claims 1-8. This Appeal Brief is in furtherance of the Notice of Appeal filed on 16 February 2006 and 24 August 2006, and the Appeal Brief filed on 12 April 2006. Applicants respectfully request that the appeal be maintained as provided in 37 C.F.R. §41.39(b)(2). Applicant respectfully requests that the fees paid with the Appeal Brief filed on 12 April 2006 be applied to the fees due for the present Appeal Brief.

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PATENT

Application # 09/867,803

Attorney Docket # 1005-006

**I. REAL PARTY IN INTEREST**

The real party in interest is RMSG LLC, a corporation having a place of business at 100 American Metro Boulevard, 2nd Floor, Hamilton, NJ, 08619.

**II. RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences.

**III. STATUS OF CLAIMS**

Claims 1-8 are pending in this application, have been twice rejected, and are the subject of this appeal. Each of claims 1, 5, and 6 are in independent form.

**IV. STATUS OF AMENDMENTS**

No amendments have been filed subsequent to the final rejections.

**V. SUMMARY OF CLAIMED SUBJECT MATTER****Independent Claim 1**

Independent claim 1 recites a computer-assisted method for evaluating a cluster assignment for an observation (see at least pages 50-52; Fig. 4). The method comprises the activity of, for each of a plurality of observations, obtaining a data set containing no more than one proxy value for each of a plurality of variables, each variable having a plurality of possible values (see at least page 50; Fig. 4, element 4010), the data set also containing a cluster assignment for the observation, the cluster assignment identifying one cluster from a plurality of clusters (see at least page 50; Fig. 4, element 4010). The method further comprises the activity of, for each observation from the plurality of observations, calculating a percent of proxy values for the plurality of variables that equals a mode of that observation's corresponding cluster's proxy values for the corresponding variables (see at least page 52; Fig. 4, element 4080). The method further comprises the activity of outputting the percent for each observation (see at least page 52; Fig. 4, element 4085).

**PATENT****Application # 09/867,803****Attorney Docket # 1005-006****Independent Claim 2**

Independent claim 2 recites a computer-assisted method for evaluating a cluster assignment for an observation (see at least pages 50-52; Fig. 4). The method comprises the activity of, for each of a plurality of observations, obtaining a data set containing no more than one proxy value for each of a plurality of variables, each variable having a plurality of possible values (see at least page 50; Fig. 4, element 4010), the data set also containing a cluster assignment for the observation. The method further comprises the activity of, for each observation from the plurality of observations, estimating a purposeful probability that a particular possible value from the plurality of possible values for a particular variable will be purposefully provided by observations assigned to a particular cluster from a plurality of clusters (see at least pages 50-1; Fig. 4, element 4010). The method further comprises the activity of outputting each purposeful probability (see at least page 52; Fig. 4, element 4085).

**Independent Claim 3**

To independent claim 1, claim 3 adds that the method comprises, for each observation from the plurality of observations in each cluster from the plurality of clusters, calculating a serendipity probability for each possible value, the serendipity probability is a measure of a probability that an observation in a particular cluster will be randomly associated with any one of the plurality of possible values for a particular variable (see at least page 51; Fig. 4, element 4030). The method further comprises for each observation from the plurality of observations, calculating a ratio of the purposeful probability to the serendipity probability (see at least page 51; Fig. 4, element 4035). The method further comprises for each observation from the plurality of observations, calculating a logarithm of the ratio to obtain composition analysis score (see at least page 51; Fig. 4, element 4040). The method further comprises the activity of outputting composition analysis scores for each observation in each cluster (see at least page 52; Fig. 4, element 4085).

**PATENT****Application # 09/867,803****Attorney Docket # 1005-006****Independent Claim 4**

To independent claim 1, claim 4 adds that the method comprises, for each observation from the plurality of observations, assuming that before the observation can be made, the observation has an equal probability of being in any identified cluster from the plurality of clusters (see at least page 51; Fig. 4, element 4050). The method further comprises for each observation from the plurality of observations, assuming that the purposeful probabilities are true (see at least page 52; Fig. 4, element 4055). The method further comprises for each observation from the plurality of observations, using Bayes' Theorem to calculate a Bayes probability that a particular observation can be in each cluster conditional upon the observation's proxy value to each variable (see at least page 52; Fig. 4, element 4060). The method further comprises the activity of outputting the Bayes probability that each observation can be in each cluster (see at least page 52; Fig. 4, element 4085).

**Independent Claim 5**

Independent claim 5 recites a computer-readable medium containing instructions for activities (see at least pages 50-52; Fig. 9, element 9300). The activities comprise, for each of a plurality of observations, obtaining a data set containing no more than one proxy value for each of a plurality of variables, each variable having a plurality of possible values (see at least page 50; Fig. 4, element 4010), the data set also containing a cluster assignment for the observation, the cluster assignment identifying one cluster from a plurality of clusters (see at least page 50; Fig. 4, element 4010). The activities further comprise, for each observation from the plurality of observations, calculating a percent of proxy values for the plurality of variables that equals a mode of that observation's corresponding cluster's proxy values for the corresponding variables (see at least page 52; Fig. 4, element 4080). The activities further comprise outputting the percent for each observation (see at least page 52; Fig. 4, element 4085).

**Independent Claim 6**

Independent claim 6 recites an apparatus for evaluating a cluster assignment for an observation (see at least pages 50-52; Fig. 9, Information Device 9). The apparatus comprises,

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for each of a plurality of observations, a means for obtaining a data set (see at least page 59, line 21-page 61, line 5; Fig. 9) containing no more than one proxy value for each of a plurality of variables, each variable having a plurality of possible values (see at least page 50; Fig. 4, element 4010), the data set also containing a cluster assignment for the observation, the cluster assignment identifying one cluster from a plurality of clusters (see at least page 50; Fig. 4, element 4010). The apparatus further comprises, for each observation from the plurality of observations, a means for calculating (see at least page 59, line 21-page 61, line 5; Fig. 9) a percent of proxy values for the plurality of variables that equals a mode of that observation's corresponding cluster's proxy values for the corresponding variables (see at least page 52; Fig. 4, element 4080). The apparatus further comprises a means for outputting (see at least page 59, line 21-page 61, line 5; Fig. 9) the percent for each observation (see at least page 52; Fig. 4, element 4085).

**Independent Claim 7**

Independent claim 7 recites a computer-readable medium containing instructions for activities (see at least pages 50-52; Fig. 9, element 9300). The activities comprise the activity of, for each of a plurality of observations, obtaining a data set containing no more than one proxy value for each of a plurality of variables, each variable having a plurality of possible values (see at least page 50; Fig. 4, element 4010), the data set also containing a cluster assignment for the observation. The activities further comprise the activity of, for each observation from the plurality of observations, estimating a purposeful probability that a particular possible value from the plurality of possible values for a particular variable will be purposefully provided by observations assigned to a particular cluster from a plurality of clusters (see at least pages 50-1; Fig. 4, element 4010). The activities further comprise the activity of outputting each purposeful probability (see at least page 52; Fig. 4, element 4085).

**Independent Claim 8**

Independent claim 8 recites an apparatus for evaluating a cluster assignment for an observation (see at least pages 50-52; Fig. 9, Information Device 9). The apparatus comprises,

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for each of a plurality of observations, a means for obtaining a data set (see at least page 59, line 21-page 61, line 5; Fig. 9) containing no more than one proxy value for each of a plurality of variables, each variable having a plurality of possible values (see at least page 50; Fig. 4, element 4010), the data set also containing a cluster assignment for the observation. The apparatus further comprises, for each observation from the plurality of observations, a means for estimating (see at least page 59, line 21-page 61, line 5; Fig. 9) a purposeful probability that a particular possible value from the plurality of possible values for a particular variable will be purposefully provided by observations assigned to a particular cluster from a plurality of clusters (see at least pages 50-1; Fig. 4, element 4010). The apparatus further comprises a means for outputting (see at least page 59, line 21-page 61, line 5; Fig. 9) each purposeful probability (see at least page 52; Fig. 4, element 4085).

**VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Each of Claims 1-8 has been at least twice rejected.

Claims 1-8 were rejected, by an Office Action dated 28 June 2006 ("the present Office Action"), under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Claims 1 and 3-6 were rejected, by the present Office Action, under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

**VII. Argument****A. Legal Standards****1. Claim Construction**

Before *prima facie* criteria for rejection can be applied, the words of each claim must be interpreted. The Federal Circuit, in *Phillips v. AWH Corp.*, 415 F.3d 1303, 75 USPQ2d 1321 (Fed. Cir. 2005) (*en banc*), *cert. denied*, 2006 U.S. LEXIS 1154, 2006 WL 386393, 126 S.Ct. 1174, 163 L.Ed.2d 1141 (2006) has clarified that:

1. "[t]he Patent and Trademark Office ('PTO') determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction 'in light of the specification as it would be



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- Interpreted by one of ordinary skill in the art”** (*Id.* at 1316);
2. the words of a claim “are generally given their ordinary and customary meaning” (*Id.* at 1312);
  3. the ordinary and customary meaning of a claim term is “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application” (*Id.* at 1313);
  4. “the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but **in the context of the entire patent, including the specification**” (*Id.*);
  5. even “the context in which a term is used in the asserted claim can be highly instructive” (*Id.* at 1314);
  6. “the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, **the inventor’s lexicography governs**” (*Id.* at 1316);
  7. even “when guidance is not provided in explicit definitional format, **the specification may define claim terms by implication** such that the meaning may be found in or ascertained by a reading of the patent documents” (*Id.* at 1321);
  8. an “invention is construed not only in the light of the claims, but also with reference to the file wrapper or prosecution history in the Patent Office” (*Id.* at 1317 (*citing Graham v. John Deere Co.*, 383 U.S. 1, 33 (1966))); and
  9. the “prosecution history... consists of the complete record of the proceedings before the PTO and **includes the prior art cited** during the examination of the patent” (*Id.* at 1317).

The rules established in *Phillips* apply to *ex parte* examination in the USPTO. *See, In re Kumar*, 418 F.2d 1361 (Fed. Cir. 2005).

**ii. Unfounded Assertions of Knowledge**

A bald assertion of knowledge generally available to one of ordinary skill in the art to bridge the evidentiary gap is improper. Such unfounded assertions are not permissible

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substitutes for evidence. *See, In re Lee*, 277 F.3d 1338, 1435, 61 USPQ2d 1430, 1435 (Fed. Cir. 2002). That is, deficiencies of the cited references can not be remedied by general conclusions about what is basic knowledge or common sense to one of ordinary skill in the art. *In re Zurko*, 258 F.3d 1379, 1385-86 (Fed. Cir. 2001).

**iii. Statutory Subject Matter****1. Computer-Related Inventions**

Regarding statutory subject matter, the Federal Circuit has held that the claimed invention as a whole must accomplish a practical application: That is, it must produce a "useful, concrete, and tangible result." *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F. 3d 1368, 1374, 47 USPQ2d 1596, 1601-02 (Fed. Cir. 1998).

In applying this standard to computer-related inventions, the Federal Circuit has held that claims drawn to a long-distance telephone billing process containing mathematical algorithms were directed to patentable subject matter because "the claimed process applies the Boolean principle to produce a useful, concrete, tangible result without pre-empting other uses of the mathematical principle." *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 1358, 50 USPQ2d 1447, 1452 (Fed. Cir. 1999);

In addition, in *State Street*, the Federal Circuit stated:

[T]ransformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces 'a useful, concrete and tangible result' -- a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.

*See State Street*, 149 F.3d at 1373, 47 USPQ2d at 1601.

Thus, a useful, concrete, and tangible result can be a momentarily fixed output that can fulfill a useful purpose.

**PATENT****Application # 09/867,803****Attorney Docket # 1005-006****2. Computer Programs Stored on a Machine-Readable Medium**

According to MPEP 2106 IV.B.1.a, "a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory."

This standard is based upon Federal Circuit decisions. For example, an "invention includes 'any new and useful process, machine, manufacture or composition of matter.'" *Eolas Technologies Inc. v. Microsoft Corp.*, 399 F.3d 1325 (Fed. Cir., 2005) (citing 35 U.S.C. § 101 (2000)). "Without question, software code alone qualifies as an invention eligible for patenting under these categories, at least as processes." *Id.* (citing *In re Alappat*, 33 F.3d 1526 (Fed.Cir.1994); *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352 (Fed.Cir.1999); MPEP § 2106.IV.B.1.a. (8th ed., rev. 2 2001)). "[S]oftware code claimed in conjunction with a physical structure, such as a disk, fits within at least those two categories of subject matter within the broad statutory label of 'patented invention.'" *Id.*

**iv. Enablement**

A *prima facie* case of non-enablement requires that the Office Action provide:

1. a rational basis as to:
  - a. why the disclosure does not teach (*see, Fiers v. Sugano*, 984 F.2d 1164, 25 UPSQ2d 1601, 1607 (Fed. Cir. 1993) (*quoting Well v. Fritz*, 601 F.2d 551, 555, 202 USPQ 447, 450 (CCPA 1979)), or
  - b. why to doubt the objective truth of the statements in the disclosure that purport to teach (*see, Fiers v. Sugano*, 984 F.2d 1164, 25 UPSQ2d 1601, 1607 (Fed. Cir. 1993) (*quoting In re Marzocchi*, 439 F.2d 220, 223, 169 USPQ 367, 369 (1969)));
2. a reasonable explanation as to why the scope of protection provided by a claim is not adequately enabled by the disclosure (*In re Wright*, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993);

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- a. without undue experimentation (*see, In re Angstadt*, 537 F.2d 498, 190 USPQ 214, 219 (1976) (*citing In re Armbruster*, 512 F.2d 676, 185 USPQ 152 (1975)));
- b. and dealing with subject matter that would not already be known to the skilled person as of the filing date of the application (*see, Webster Loom v. Higgins*, 105 U.S. (15 Otto) 580 (1881)).

The need for presenting a *prima facie* non-enablement rejection is explained at MPEP 2164.04 ("it is incumbent on the Patent Office, whenever a rejection on this basis is made, to explain *why* it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement." *In re Marzocchi*, 439 F.2d 220,224, 169 USPQ 367, 370 (CCPA 1971) (emphasis in original)).

Further, the "specification need describe the invention only in such detail as to enable a person skilled in the most relevant art to make and use it." See *In re Naquin*, 398 F.2d 863, 158 USPQ 317 (C.C.P.A. 1968).

**B. Analysis****i. The Statutory Subject Matter Rejections****1. Claim 1**

The present Office Action asserts, at pages 3-4:

[c]laims 1-8 are directed to nonstatutory subject matter because the claimed invention does not provide a practical application. A claim is directed to a practical application when there is either a physical transformation or when a useful, concrete and tangible result is produce. The invention of claims 1-8 do not transforms an article or physical object to a different state or thing. Data transformation is not a physical transformation. Data, by definition, is intangible, so the claims must go further and have a tangible result. Thus, manipulation of data in a computer is not, in and of itself, sufficient for establishing that a claim is statutory.

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As an initial matter, Applicant respectfully notes that this assertion of the present Office Action provides no evidence that the claimed subject matter does not produce a useful, concrete, and tangible result. Thus, Applicant respectfully submits that this unsupported assertion from the Office Action is insufficient to establish that claim 1 is not directed to statutory subject matter. Moreover, this assertion is facially nonsensical since any computer-assisted method necessarily results in at least switches of some form (e.g., transistors or their functional equivalent) switching on and off in order to carry out the method. Therefore, to claim that “[d]ata transformation” in a computer-assisted method “is not a physical transformation” is simply technically incorrect.

Claim 1 recites, *inter alia*, “outputting the percent for each observation.” Applicant respectfully submits that the specification indicates that this information can be used by one skilled in the art at least “to increase the effectiveness of marketing strategy and tactics by either reducing the number of unique marketing targets from  $n$  (i.e., all individual customers/prospects) to a manageable and actionable subset of finite marketing targets or by increasing the number of targets from one group, in which all customers/prospects are treated alike.” See page 19, lines 6-11.

Applicant respectfully submits that “outputting the percent for each observation” is comparable to the long-distance telephone billing process of *AT&T Corp.* Likewise, “outputting the percent for each observation” is comparable to momentarily fixing a final share price for recording and reporting purposes that can be accepted and relied upon by regulatory authorities and in subsequent trades as in *State Street*. Thus, Applicant respectfully submits that “outputting the percent for each observation” is a useful, concrete, and tangible result.

Applicant further submits that this claimed activity, when read in light of the specification, would necessarily utilize an I/O device (see, e.g., at least Fig. 9 and the description thereof). Note that the claimed subject matter of each of claims 1-8 is at least described by Fig. 4 of the application and the related description thereof, including the description of “Method 4”.

In describing Fig. 9, the specification states, “using the description of methods 1 through 8 and 10, one of ordinary skill in the art can implement the functionality of methods 1 through 8 and 10 via information device 9 utilizing any of a wide variety of well-known architectures,

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hardware, protocols, and/or software.” The specification further states, that “[i]nformation device 9 can include well-known components such as... one or more input/output (I/O) devices 9180”, and that, (emphasis added), “[a]ny input/output (I/O) device 9180 can be an **audio and/or visual device**, including, for example, a **monitor**, display, keyboard, keypad, touchpad, pointing device, microphone, speaker, video camera, camera, scanner, and/or **printer**, including a port to which an I/O device can be attached or connected.” Thus, Applicant respectfully submits that, “outputting”, as this application implicitly defines and/or guides the interpretation of that term to one of ordinary skill in the art, “produces a useful, concrete, and tangible result”.

For at least these reasons, Applicant respectfully submits that claim 1 is directed toward statutory subject matter. For at least these reasons, Applicant respectfully requests a reversal of the rejection of claim 1.

**2. Claim 2**

The present Office Action asserts, at pages 3-4:

[c]laims 1-8 are directed to nonstatutory subject matter because the claimed invention does not provide a practical application. A claim is directed to a practical application when there is either a physical transformation or when a useful, concrete and tangible result is produce. The invention of claims 1-8 do not transforms an article or physical object to a different state or thing. Data transformation is not a physical transformation. Data, by definition, is intangible, so the claims must go further and have a tangible result. Thus, manipulation of data in a computer is not, in and of itself, sufficient for establishing that a claim is statutory.

As an initial matter, Applicant respectfully notes that this assertion of the present Office Action provides no evidence that the claimed subject matter does not produce a useful, concrete, and tangible result. Thus, Applicant respectfully submits that this unsupported assertion from the Office Action is insufficient to establish that claim 2 is not directed to statutory subject matter. Moreover, this assertion is facially nonsensical since any computer-assisted method necessarily results in at least switches of some form (e.g., transistors or their functional

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equivalent) switching on and off in order to carry out the method. Therefore, to claim that “[d]ata transformation” in a computer-assisted method “is not a physical transformation” is simply technically incorrect.

Claim 2 recites, *inter alia*, “outputting each purposeful probability.” Applicant respectfully submits that the specification indicates that this information can be used by one skilled in the art at least “to increase the effectiveness of marketing strategy and tactics by either reducing the number of unique marketing targets from  $n$  (i.e., all individual customers/prospects) to a manageable and actionable subset of finite marketing targets or by increasing the number of targets from one group, in which all customers/prospects are treated alike.” See page 19, lines 6-11.

Applicant respectfully submits that “outputting each purposeful probability” is comparable to the long-distance telephone billing process of *AT&T Corp.* Likewise, “outputting each purposeful probability” is comparable to momentarily fixing a final share price for recording and reporting purposes that can be accepted and relied upon by regulatory authorities and in subsequent trades as in *State Street*. Thus, Applicant respectfully submits that “outputting each purposeful probability” is a useful, concrete, and tangible result.

Applicant further submits that this claimed activity, when read in light of the specification, would necessarily utilize an I/O device (see, e.g., at least Fig. 9 and the description thereof). Note that the claimed subject matter of each of claims 1-8 is at least described by Fig. 4 of the application and the related description thereof, including the description of “Method 4”.

In describing Fig. 9, the specification states, “using the description of methods 1 through 8 and 10, one of ordinary skill in the art can implement the functionality of methods 1 through 8 and 10 via information device 9 utilizing any of a wide variety of well-known architectures, hardware, protocols, and/or software.” The specification further states, that “[i]nformation device 9 can include well-known components such as... one or more input/output (I/O) devices 9180”, and that, (emphasis added), “[a]ny input/output (I/O) device 9180 can be an **audio and/or visual device**, including, for example, a **monitor**, display, keyboard, keypad, touchpad, pointing device, microphone, speaker, video camera, camera, scanner, and/or **printer**, including a port to which an I/O device can be attached or connected.” Thus, Applicant respectfully

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submits that, "outputting", as this application implicitly defines and/or guides the interpretation of that term to one of ordinary skill in the art, "produces a useful, concrete, and tangible result".

For at least these reasons, Applicant respectfully submits that claim 2 is directed toward statutory subject matter. Accordingly, Applicant respectfully requests a reversal of the rejection of claim 2.

**3. Claim 3**

Since claim 3 depends from claim 1, Applicant respectfully incorporates by reference each argument presented regarding claim 1 by reference herein, and respectfully submits the following additional arguments that are specific to claim 3.

Claim 3 recites, *inter alia*, "outputting the composition analysis scores for each observation in each cluster." Applicant respectfully submits that the specification indicates that this information can be used by one skilled in the art at least "to increase the effectiveness of marketing strategy and tactics by either reducing the number of unique marketing targets from  $n$  (i.e., all individual customers/prospects) to a manageable and actionable subset of finite marketing targets or by increasing the number of targets from one group, in which all customers/prospects are treated alike." See page 19, lines 6-11.

Applicant respectfully submits that "outputting the composition analysis scores for each observation in each cluster" is comparable to the long-distance telephone billing process of *AT&T Corp.* Likewise, "outputting the composition analysis scores for each observation in each cluster" is comparable to momentarily fixing a final share price for recording and reporting purposes that can be accepted and relied upon by regulatory authorities and in subsequent trades as in *State Street*. Thus, Applicant respectfully submits that "outputting the composition analysis scores for each observation in each cluster" is a useful, concrete, and tangible result.

Applicant further submits that this claimed activity, when read in light of the specification, would necessarily utilize an I/O device (see, e.g., at least Fig. 9 and the description thereof). Note that the claimed subject matter of each of claims 1-8 is at least described by Fig. 4 of the application and the related description thereof, including the description of "Method 4".

In describing Fig. 9, the specification states, "using the description of methods 1 through



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8 and 10, one of ordinary skill in the art can implement the functionality of methods 1 through 8 and 10 via information device 9 utilizing any of a wide variety of well-known architectures, hardware, protocols, and/or software.” The specification further states, that “[i]nformation device 9 can include well-known components such as... one or more input/output (I/O) devices 9180”, and that, (emphasis added), “[a]ny input/output (I/O) device 9180 can be an **audio and/or visual device**, including, for example, a **monitor**, display, keyboard, keypad, touchpad, pointing device, microphone, speaker, video camera, camera, scanner, and/or **printer**, including a port to which an I/O device can be attached or connected.” Thus, Applicant respectfully submits that, “outputting”, as this application implicitly defines and/or guides the interpretation of that term to one of ordinary skill in the art, “produces a useful, concrete, and tangible result”.

For at least these reasons, Applicant respectfully submits that claim 3 is directed toward statutory subject matter.

For at least these reasons, Applicant respectfully requests a reversal of the rejection of claim 3.

**4. Claim 4**

Since claim 4 depends from claim 1, Applicant respectfully incorporates by reference each argument presented regarding claim 1 by reference herein, and respectfully submits the following additional arguments that are specific to claim 4.

Claim 4 recites, *inter alia*, “outputting the Bayes probability that each observation can be in each cluster.” Applicant respectfully submits that the specification indicates that this information can be used by one skilled in the art at least “to increase the effectiveness of marketing strategy and tactics by either reducing the number of unique marketing targets from  $n$  (i.e., all individual customers/prospects) to a manageable and actionable subset of finite marketing targets or by increasing the number of targets from one group, in which all customers/prospects are treated alike.” See page 19, lines 6-11.

Applicant respectfully submits that “outputting the Bayes probability that each observation can be in each cluster” is comparable to the long-distance telephone billing process of *AT&T Corp.* Likewise, “outputting the Bayes probability that each observation can be in each

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cluster” is comparable to momentarily fixing a final share price for recording and reporting purposes that can be accepted and relied upon by regulatory authorities and in subsequent trades as in *State Street*. Thus, Applicant respectfully submits that “outputting the Bayes probability that each observation can be in each cluster” is a useful, concrete, and tangible result.

Applicant further submits that this claimed activity, when read in light of the specification, would necessarily utilize an I/O device (see, e.g., at least Fig. 9 and the description thereof). Note that the claimed subject matter of each of claims 1-8 is at least described by Fig. 4 of the application and the related description thereof, including the description of “Method 4”.

In describing Fig. 9, the specification states, “using the description of methods 1 through 8 and 10, one of ordinary skill in the art can implement the functionality of methods 1 through 8 and 10 via information device 9 utilizing any of a wide variety of well-known architectures, hardware, protocols, and/or software.” The specification further states, that “[i]nformation device 9 can include well-known components such as... one or more input/output (I/O) devices 9180”, and that, (emphasis added), “[a]ny input/output (I/O) device 9180 can be an audio and/or visual device, including, for example, a monitor, display, keyboard, keypad, touchpad, pointing device, microphone, speaker, video camera, camera, scanner, and/or printer, including a port to which an I/O device can be attached or connected.” Thus, Applicant respectfully submits that, “outputting”, as this application implicitly defines and/or guides the interpretation of that term to one of ordinary skill in the art, “produces a useful, concrete, and tangible result”.

For at least these reasons, Applicant respectfully submits that claim 4 is directed toward statutory subject matter. For at least these reasons, Applicant respectfully requests a reversal of the rejection of claim 4.

**5. Claim 5**

The present Office Action asserts, at pages 3-4:

[c]laims 1-8 are directed to nonstatutory subject matter because the claimed invention does not provide a practical application. A claim is directed to a practical application when there is either a physical transformation or when a useful, concrete and tangible result is produce. The invention of claims 1-8 do not

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transforms an article or physical object to a different state or thing. Data transformation is not a physical transformation. Data, by definition, is intangible, so the claims must go further and have a tangible result. Thus, manipulation of data in a computer is not, in and of itself, sufficient for establishing that a claim is statutory.

As an initial matter, Applicant respectfully notes that this assertion of the present Office Action provides no evidence that the claimed subject matter does not produce a useful, concrete, and tangible result. Thus, Applicant respectfully submits that this unsupported assertion from the Office Action is insufficient to establish that claim 5 is not directed to statutory subject matter.

Claim 5 recites, *inter alia*, a "computer-readable medium containing instructions for activities". The "instructions for activities" defines "interrelationships between the computer-readable medium and the rest of the computer which permit the instructions for activities' functionality to be realized". Regarding such claimed subject matter, the Federal Circuit held in *AT&T Corp. v. Excel Communications, Inc.* (see section VII.A.iii.2, *supra*), "[S]oftware code claimed in conjunction with a physical structure, such as a disk, fits within at least those two categories of subject matter within the broad statutory label of 'patented invention.'" Applicant respectfully submits that one having ordinary skill in the art would instantly recognize that claim 5 is "software code" claimed in conjunction with a "computer-readable medium", which meets the statutory subject matter standard of *AT&T Corp. v. Excel Communications, Inc.*

Moreover, claim 5 recites, *inter alia*, "outputting the percent for each observation." Applicant respectfully submits that the specification indicates that this information can be used by one skilled in the art at least "to increase the effectiveness of marketing strategy and tactics by either reducing the number of unique marketing targets from  $n$  (i.e., all individual customers/prospects) to a manageable and actionable subset of finite marketing targets or by increasing the number of targets from one group, in which all customers/prospects are treated alike." See page 19, lines 6-11.

Applicant respectfully submits that "outputting the percent for each observation" is comparable to the long-distance telephone billing process of *AT&T Corp.* Likewise, "outputting

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the percent for each observation" is comparable to momentarily fixing a final share price for recording and reporting purposes that can be accepted and relied upon by regulatory authorities and in subsequent trades as in *State Street*. Thus, Applicant respectfully submits that "outputting the percent for each observation" is a useful, concrete, and tangible result.

Applicant further submits that this claimed activity, when read in light of the specification, would necessarily utilize an I/O device (see, e.g., at least Fig. 9 and the description thereof). Note that the claimed subject matter of each of claims 1-8 is at least described by Fig. 4 of the application and the related description thereof, including the description of "Method 4".

In describing Fig. 9, the specification states, "using the description of methods 1 through 8 and 10, one of ordinary skill in the art can implement the functionality of methods 1 through 8 and 10 via information device 9 utilizing any of a wide variety of well-known architectures, hardware, protocols, and/or software." The specification further states, that "[i]nformation device 9 can include well-known components such as... one or more input/output (I/O) devices 9180", and that, (emphasis added), "[a]ny input/output (I/O) device 9180 can be an audio and/or visual device, including, for example, a monitor, display, keyboard, keypad, touchpad, pointing device, microphone, speaker, video camera, camera, scanner, and/or printer, including a port to which an I/O device can be attached or connected." Thus, Applicant respectfully submits that, "outputting", as this application implicitly defines and/or guides the interpretation of that term to one of ordinary skill in the art, "produces a useful, concrete, and tangible result". For at least these reasons, Applicant respectfully requests a reversal of the rejection of claim 5.

**6. Claim 6****a. Claim Construction**

The present Office Action alleges:

Claims 6 and 8 recite 'An apparatus' comprising means for performing functions. However, as seen in claim 5 and 7, such means are construed as 'instructions for activities', or computer program per se: The claimed 'apparatus' therefore comprises only a set of instructions. The computer readable medium must be physical structure which provides the functional descriptive material in usable

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form to permit the functionality to be realized with the computer. A program product which does not explicitly include such a medium, a program per se, a signal or other type of transmission media that fails to include the hardware necessary to realize the functionality (e.g., a transmitter or a receiver), and a piece of paper with the functional descriptive material written on it are all examples of media which are not believed to enable the functionality to be realized with the computer.

As an initial matter, Applicant respectfully traverses the attempt of the present Office Action to import claim limitations from claims 5 and 7 into claim 6. Applicant respectfully submits that claim 6 states, *inter alia*, a "means for obtaining a data set", a "means for calculating a percent of proxy values", and a "means for outputting the percent for each observation". Each of these "means" is entitled to a breadth accorded such claims according to 35 U.S.C. 112 paragraph 6, which requires "such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof". The present Office Action makes no such construction in view of the specification, such as at least at page 59, line 21-page 61, line 5 and/or Fig. 9, etc. As such, the present Office Action fails to establish any rejection based upon a proper construction of claim 6.

Applicant further respectfully submits that no evidence is presented by the present Office Action that one having ordinary skill in the art would construe the "means" of claim 6 to be "'instructions for activities', or computer program per se." Moreover, no evidence is presented that, one having ordinary skill in the art would interpret the phrase "apparatus" to comprise "only a set of instructions" and would not review the specification, such as page 59, line 21-page 61, line 5 and/or Fig. 9, etc. to identify additional structure that can provide the function corresponding to the claimed means. Accordingly, Applicant respectfully submits that the claim construction relied upon by the present Office Action does not comply with the standards established by *Phillips* and that any rejection based thereon should be reversed for at least that reason.

The present Office Action asserts, at pages 3-4:

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[c]laims 1-8 are directed to nonstatutory subject matter because the claimed invention does not provide a practical application. A claim is directed to a practical application when there is either a physical transformation or when a useful, concrete and tangible result is produce. The invention of claims 1-8 do not transforms an article or physical object to a different state or thing. Data transformation is not a physical transformation. Data, by definition, is intangible, so the claims must go further and have a tangible result. Thus, manipulation of data in a computer is not, in and of itself, sufficient for establishing that a claim is statutory.

As an initial matter, Applicant respectfully notes that this assertion of the present Office Action provides no evidence that the claimed subject matter does not produce a useful, concrete, and tangible result. Thus, Applicant respectfully submits that this unsupported assertion from the Office Action is insufficient to establish that claim 6 is not directed to statutory subject matter. In addition, this assertion is facially nonsensical since one having ordinary skill in the art would instantly recognize that the "apparatus" of claim 6, when read in view of the specification, necessarily utilizes at least switches of some form (e.g., transistors or their functional equivalent) that switch on and off in order to perform the claimed apparatus functions. Such switching necessarily results in "a physical transformation" contrary to the assertion of the present Office Action that "[d]ata transformation is not a physical transformation".

Claim 6 recites, *inter alla*, "means for outputting the percent for each observation." Applicant respectfully submits that the specification indicates that an outputted "percent for each observation" can be used by one skilled in the art at least "to increase the effectiveness of marketing strategy and tactics by either reducing the number of unique marketing targets from n (i.e., all individual customers/prospects) to a manageable and actionable subset of finite marketing targets or by increasing the number of targets from one group, in which all customers/prospects are treated alike." See page 19, lines 6-11.

Applicant respectfully submits that an output of a "percent for each observation" is comparable to the long-distance telephone billing process of AT&T Corp. Likewise, an output of a "percent for each observation" is comparable to momentarily fixing a final share price for

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recording and reporting purposes that can be accepted and relied upon by regulatory authorities and in subsequent trades as in State Street. Thus, Applicant respectfully submits that, even absent a construction of the claimed apparatus as a device, both an outputted "percent for each observation" and "increas[ing] the effectiveness of marketing strategy and tactics" are useful, concrete, and tangible results.

Applicant further submits that this claimed activity, when read in light of the specification, would necessarily utilize an I/O device (see, e.g., at least Fig. 9 and the description thereof). Note that the claimed subject matter of each of claims 1-8 is at least described by Fig. 4 of the application and the related description thereof, including the description of "Method 4".

In describing Fig. 9, the specification states, "using the description of methods 1 through 8 and 10, one of ordinary skill in the art can implement the functionality of methods 1 through 8 and 10 via information device 9 utilizing any of a wide variety of well-known architectures, hardware, protocols, and/or software." The specification further states, that "[i]nformation device 9 can include well-known components such as... one or more input/output (I/O) devices 9180", and that, (emphasis added), "[a]ny input/output (I/O) device 9180 can be an audio and/or visual device, including, for example, a monitor, display, keyboard, keypad, touchpad, pointing device, microphone, speaker, video camera, camera, scanner, and/or printer, including a port to which an I/O device can be attached or connected." Thus, Applicant respectfully submits that, "outputting", as this application implicitly defines and/or guides the interpretation of that term to one of ordinary skill in the art, "produces a useful, concrete, and tangible result".

Applicant further submits that claim 6 recites, *inter alia*, an "apparatus for evaluating a cluster" encoded with "containing instructions for activities". Applicant respectfully submits that an apparatus is statutory subject matter.

For at least these reasons, Applicant respectfully requests a reversal of the rejection of claim 6.

**7. Claim 7**

The present Office Action asserts, at pages 3-4:

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[c]laims 1-8 are directed to nonstatutory subject matter because the claimed invention does not provide a practical application. A claim is directed to a practical application when there is either a physical transformation or when a useful, concrete and tangible result is produce. The invention of claims 1-8 do not transforms an article or physical object to a different state or thing. Data transformation is not a physical transformation. Data, by definition, is intangible, so the claims must go further and have a tangible result. Thus, manipulation of data in a computer is not, in and of itself, sufficient for establishing that a claim is statutory.

As an initial matter, Applicant respectfully notes that this assertion of the present Office Action provides no evidence that the claimed subject matter does not produce a useful, concrete, and tangible result. Thus, Applicant respectfully submits that this unsupported assertion from the Office Action is insufficient to establish that claim 7 is not directed to statutory subject matter.

Claim 7 recites, *inter alia*, a "computer-readable medium containing instructions for activities". The "instructions for activities" defines "interrelationships between the computer-readable medium and the rest of the computer which permit the instructions for activities' functionality to be realized". Regarding such claimed subject matter, the Federal Circuit held in *AT&T Corp. v. Excel Communications, Inc.* (see section VII.A.iii.2, *supra*), "[S]oftware code claimed in conjunction with a physical structure, such as a disk, fits within at least those two categories of subject matter within the broad statutory label of 'patented invention.'" Applicant respectfully submits that one having ordinary skill in the art would instantly recognize that claim 7 is "software code" claimed in conjunction with a "computer-readable medium", which meets the statutory subject matter standard of *AT&T Corp. v. Excel Communications, Inc.*

Moreover, claim 7 recites, *inter alla*, "outputting each purposeful probability." Applicant respectfully submits that the specification indicates that this information can be used by one skilled in the art at least "to increase the effectiveness of marketing strategy and tactics by either reducing the number of unique marketing targets from  $n$  (i.e., all individual customers/prospects) to a manageable and actionable subset of finite marketing targets or by increasing the number of



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targets from one group, in which all customers/prospects are treated alike." See page 19, lines 6-11.

Applicant respectfully submits that "outputting each purposeful probability" is comparable to the long-distance telephone billing process of *AT&T Corp.* Likewise, "outputting each purposeful probability" is comparable to momentarily fixing a final share price for recording and reporting purposes that can be accepted and relied upon by regulatory authorities and in subsequent trades as in *State Street*. Thus, Applicant respectfully submits that "outputting each purposeful probability" is a useful, concrete, and tangible result.

Applicant further submits that this claimed activity, when read in light of the specification, would necessarily utilize an I/O device (see, e.g., at least Fig. 9 and the description thereof). Note that the claimed subject matter of each of claims 1-8 is at least described by Fig. 4 of the application and the related description thereof, including the description of "Method 4".

In describing Fig. 9, the specification states, "using the description of methods 1 through 8 and 10, one of ordinary skill in the art can implement the functionality of methods 1 through 8 and 10 via information device 9 utilizing any of a wide variety of well-known architectures, hardware, protocols, and/or software." The specification further states, that "[i]nformation device 9 can include well-known components such as... one or more input/output (I/O) devices 9180", and that, (emphasis added), "[a]ny input/output (I/O) device 9180 can be an **audio and/or visual device**, including, for example, a **monitor**, display, keyboard, keypad, touchpad, pointing device, microphone, speaker, video camera, camera, scanner, and/or **printer**, including a port to which an I/O device can be attached or connected." Thus, Applicant respectfully submits that, "outputting", as this application implicitly defines and/or guides the interpretation of that term to one of ordinary skill in the art, "produces a useful, concrete, and tangible result".

For at least these reasons, Applicant respectfully requests a reversal of the rejection of claim 7.

**8. Claim 8**

The present Office Action alleges:

Claims 6 and 8 recite 'An apparatus' comprising means for performing functions.

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However, as seen in claim 5 and 7, such means are construed as 'instructions for activities', or computer program per se. The claimed 'apparatus' therefore comprises only a set of instructions. The computer readable medium must be physical structure which provides the functional descriptive material in usable form to permit the functionality to be realized with the computer. A program product which does not explicitly include such a medium, a program per se, a signal or other type of transmission media that fails to include the hardware necessary to realize the functionality (e.g., a transmitter or a receiver), and a piece of paper with the functional descriptive material written on it are all examples of media which are not believed to enable the functionality to be realized with the computer.

As an initial matter, Applicant respectfully traverses the attempt of the present Office Action to import claim limitations from claims 5 and 7 into claim 8. Applicant respectfully submits that claim 8 states, *inter alia*, a "means for obtaining a data set", a "means for estimating a purposeful probability", and a "means for outputting each purposeful probability". Each of these "means" is entitled to a breadth accorded such claims according to 35 U.S.C. 112 paragraph 6, which requires "such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof". The present Office Action makes no such construction in view of the specification, such as at least at page 59, line 21-page 61, line 5 and/or Fig. 9, etc. As such, the present Office Action fails to establish any rejection based upon a proper construction of claim 8.

Applicant further respectfully submits that no evidence is presented by the present Office Action that one having ordinary skill in the art would construe the "means" of claim 8 to be "'instructions for activities', or computer program per se." Moreover, no evidence is presented that, one having ordinary skill in the art would interpret the phrase "apparatus" to comprise "only a set of instructions" and would not review the specification, such as page 59, line 21-page 61, line 5 and/or Fig. 9, etc. to identify additional structure that can provide the function corresponding to the claimed means. Accordingly, Applicant respectfully submits that the claim construction relied upon by the present Office Action does not comply with the standards

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established by *Phillips* and that any rejection based thereon should be reversed for at least that reason.

The present Office Action asserts, at pages 3-4:

[c]laims 1-8 are directed to nonstatutory subject matter because the claimed invention does not provide a practical application. A claim is directed to a practical application when there is either a physical transformation or when a useful, concrete and tangible result is produce. The invention of claims 1-8 do not transforms an article or physical object to a different state or thing. Data transformation is not a physical transformation. Data, by definition, is intangible, so the claims must go further and have a tangible result. Thus, manipulation of data in a computer is not, in and of itself, sufficient for establishing that a claim is statutory.

As an initial matter, Applicant respectfully notes that this assertion of the present Office Action provides no evidence that the claimed subject matter does not produce a useful, concrete, and tangible result. Thus, Applicant respectfully submits that this unsupported assertion from the Office Action is insufficient to establish that claim 8 is not directed to statutory subject matter. In addition, this assertion is facially nonsensical since one having ordinary skill in the art would instantly recognize that the "apparatus" of claim 8, when read in view of the specification, necessarily utilizes at least switches of some form (e.g., transistors or their functional equivalent) that switch on and off in order to perform the claimed apparatus functions. Such switching necessarily results in "a physical transformation" contrary to the assertion of the present Office Action that "[d]ata transformation is not a physical transformation".

Claim 8 recites, *inter alia*, "means for outputting each purposeful probability." Applicant respectfully submits that, even absent of a construction of the "means for outputting" of claim 8 as a device, the specification indicates that an outputted "purposeful probability" can be used by one skilled in the art at least "to increase the effectiveness of marketing strategy and tactics by either reducing the number of unique marketing targets from  $n$  (i.e., all individual customers/prospects) to a manageable and actionable subset of finite marketing targets or by increasing the number of targets from one group, in which all customers/prospects are treated

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alike." See page 19, lines 6-11.

Applicant respectfully submits that an outputted "purposeful probability" is comparable to the long-distance telephone billing process of AT&T Corp. Likewise, an outputted "purposeful probability" is comparable to momentarily fixing a final share price for recording and reporting purposes that can be accepted and relied upon by regulatory authorities and in subsequent trades as in State Street. Thus, Applicant respectfully submits that "outputting the percent for each observation" and "increas[ing] the effectiveness of marketing strategy and tactics" are useful, concrete, and tangible results.

Applicant further submits that this claimed activity, when read in light of the specification, would necessarily utilize an I/O device (see, e.g., at least Fig. 9 and the description thereof). Note that the claimed subject matter of each of claims 1-8 is at least described by Fig. 4 of the application and the related description thereof, including the description of "Method 4".

In describing Fig. 9, the specification states, "using the description of methods 1 through 8 and 10, one of ordinary skill in the art can implement the functionality of methods 1 through 8 and 10 via information device 9 utilizing any of a wide variety of well-known architectures, hardware, protocols, and/or software." The specification further states, that "[i]nformation device 9 can include well-known components such as... one or more input/output (I/O) devices 9180", and that, (emphasis added), "[a]ny input/output (I/O) device 9180 can be an **audio and/or visual device**, including, for example, a **monitor**, display, keyboard, keypad, touchpad, pointing device, microphone, speaker, video camera, camera, scanner, and/or **printer**, including a port to which an I/O device can be attached or connected." Thus, Applicant respectfully submits that, "outputting", as this application implicitly defines and/or guides the interpretation of that term to one of ordinary skill in the art, "produces a useful, concrete, and tangible result".

Applicant further submits that claim 8 recites, *inter alia*, an "apparatus for evaluating a cluster". Applicant respectfully submits that an apparatus is a device that is statutory subject matter. For at least these reasons, Applicant respectfully requests a reversal of the rejection of claim 8.

**PATENT****Application # 09/867,803****Attorney Docket # 1005-006****II. The Enablement Rejections****1. Claim 1**

The present Office Action fails to establish a *prima facie* case of non-enablement. The present Office Action provides no rational basis as to why the application does not teach the claimed subject matter, e.g., "proxy values", "observation", "variables", etc... Likewise, the present Office Action provides no rational basis as to why, upon reading the application and relying on their ordinary skill, a person having ordinary skill in the art would not know how to perform the claimed subject matter, e.g., "calculating a percent", "calculating a percent of proxy values", "calculating a percent of proxy values that equals a mode", etc. The present Office Action fails to provide any rational basis as to why one should doubt the objective truth of the statements in the disclosure that purport to teach the claimed subject matter. In addition, the present Office Action fails to provide a reasonable explanation as to why the scope of protection provided by this claim is not adequately enabled by the disclosure without undue experimentation and/or deals with subject matter that would not already be known to the skilled person as of the filing date of the application.

Thus, the present Office Action fails to establish a *prima facie* case of non-enablement. For at least these reasons, Applicant respectfully requests a reversal of the rejection of claim 1.

**2. Claim 3**

The present Office Action fails to establish a *prima facie* case of non-enablement. By rejecting claims 1 and 3-6 as a group, the Office Action appears to improperly group claims together in a common rejection without any showing that the rejection is equally applicable to all claims in the group. That is never appropriate. See MPEP 707.07(d) (a "plurality of claims should never be grouped together in a common rejection, unless the rejection is equally applicable to all claims in the group").

For example, regarding claim 3, the present Office Action alleges, at Page 5:

[c]laims 1, 3-6 contain the limitation "calculating a percent of proxy values for the plurality of variables that equals a mode of that observation's corresponding cluster's proxy values for the corresponding variables" which was not described in

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the specification in such a way as to enable one skill in the art to which it pertains, or with which it is most nearly connected, to make and/or use of the invention.

Yet, contrary to the allegation of the present Office Action, claim 3 does not state "calculating a percent of proxy values for the plurality of variables that equals a mode of that observation's corresponding cluster's proxy values for the corresponding variables".

Moreover, even if the alleged claim language were in claim 3, the present Office Action provides no rational basis as to why the application does not teach the claimed subject matter, e.g., "proxy values", "observation", "variables", etc. Likewise, the present Office Action provides no rational basis as to why, upon reading the application and relying on their ordinary skill, a person having ordinary skill in the art would not know how to perform the claimed subject matter, e.g., "calculating a percent", "calculating a percent of proxy values", "calculating a percent of proxy values that equals a mode", etc.. The present Office Action fails to provide any rational basis as to why one should doubt the objective truth of the statements in the disclosure that purport to teach the claimed subject matter. In addition, the present Office Action fails to provide a reasonable explanation as to why the scope of protection provided by this claim is not adequately enabled by the disclosure without undue experimentation and/or deals with subject matter that would not already be known to the skilled person as of the filing date of the application.

Thus, the present Office Action fails to establish a *prima facie* case of non-enablement. For at least these reasons, Applicant respectfully requests a reversal of the rejection of claim 3.

**3. Claim 4**

The present Office Action fails to establish a *prima facie* case of non-enablement. By rejecting claims 1 and 3-6 as a group, the Office Action appears to improperly group claims together in a common rejection without any showing that the rejection is equally applicable to all claims in the group. That is never appropriate. See MPEP 707.07(d) (a "plurality of claims" should **never** be grouped together in a common rejection, unless the rejection is **equally applicable** to all claims in the group").

For example, regarding claim 4, the present Office Action alleges, at Page 5:

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[c]laims 1, 3-6 contain the limitation "calculating a percent of proxy values for the plurality of variables that equals a mode of that observation's corresponding cluster's proxy values for the corresponding variables" which was not described in the specification in such a way as to enable one skill in the art to which it pertains, or with which it is most nearly connected, to make and/or use of the invention.

Yet, contrary to the allegation of the present Office Action, claim 4 does not state "calculating a percent of proxy values for the plurality of variables that equals a mode of that observation's corresponding cluster's proxy values for the corresponding variables".

Moreover, even if the alleged claim language were in claim 4, the present Office Action provides no rational basis as to why the application does not teach the claimed subject matter, e.g., "proxy values", "observation", "variables", etc. Likewise, the present Office Action provides no rational basis as to why, upon reading the application and relying on their ordinary skill, a person having ordinary skill in the art would not know how to perform the claimed subject matter, e.g., "calculating a percent", "calculating a percent of proxy values", "calculating a percent of proxy values that equals a mode", etc.. The present Office Action fails to provide any rational basis as to why one should doubt the objective truth of the statements in the disclosure that purport to teach the claimed subject matter. In addition, the present Office Action fails to provide a reasonable explanation as to why the scope of protection provided by this claim is not adequately enabled by the disclosure without undue experimentation and/or deals with subject matter that would not already be known to the skilled person as of the filing date of the application.

Thus, the present Office Action fails to establish a *prima facie* case of non-enablement. For at least these reasons, Applicant respectfully requests a reversal of the rejection of claim 4.

**4. Claim 5**

The present Office Action fails to establish a *prima facie* case of non-enablement. The present Office Action provides no rational basis as to why the application does not teach the claimed subject matter, e.g., "proxy values", "observation", "variables", etc. Likewise, the present Office Action provides no rational basis as to why, upon reading the application and

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relying on their ordinary skill, a person having ordinary skill in the art would not know how to perform the claimed subject matter, e.g., "calculating a percent", "calculating a percent of proxy values", "calculating a percent of proxy values that equals a mode", etc. The present Office Action fails to provide any rational basis as to why one should doubt the objective truth of the statements in the disclosure that purport to teach the claimed subject matter. In addition, the present Office Action fails to provide a reasonable explanation as to why the scope of protection provided by this claim is not adequately enabled by the disclosure without undue experimentation and/or deals with subject matter that would not already be known to the skilled person as of the filing date of the application.

Thus, the present Office Action fails to establish a *prima facie* case of non-enablement. For at least these reasons, Applicant respectfully requests a reversal of the rejection of claim 5.

**5. Claim 6**

The present Office Action fails to establish a *prima facie* case of non-enablement. The present Office Action provides no rational basis as to why the application does not teach the claimed subject matter, e.g., "proxy values", "observation", "variables", etc... Likewise, the present Office Action provides no rational basis as to why, upon reading the application and relying on their ordinary skill, a person having ordinary skill in the art would not know how to perform the claimed subject matter, e.g., "calculating a percent", "calculating a percent of proxy values", "calculating a percent of proxy values that equals a mode", etc. The present Office Action fails to provide any rational basis as to why one should doubt the objective truth of the statements in the disclosure that purport to teach the claimed subject matter. In addition, the present Office Action fails to provide a reasonable explanation as to why the scope of protection provided by this claim is not adequately enabled by the disclosure without undue experimentation and/or deals with subject matter that would not already be known to the skilled person as of the filing date of the application. Thus, the present Office Action fails to establish a *prima facie* case of non-enablement.

Thus, the present Office Action fails to establish a *prima facie* case of non-enablement. For at least these reasons, Applicant respectfully requests a reversal of the rejection of claim 6



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**VIII. CLAIMS APPENDIX**

Appendix A sets forth all pending claims in the state in which they were appealed.

**IX. EVIDENCE APPENDIX**

Appendix B sets forth copies of any evidence submitted pursuant to 37 C.F.R. § 1.130, 37 C.F.R. § 1.131, or 37 C.F.R. § 1.132 or of any other evidence entered by the examiner and relied upon by appellant in the appeal, along with a statement setting forth where in the record that evidence was entered in the record by the examiner.

**X. RELATED PROCEEDINGS APPENDIX**

Appendix C sets forth copies of decisions rendered by a court or the Board in any proceeding identified pursuant to 37 C.F.R. § 41.37(c)(1)(ii).

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Attorney Docket # 1005-006

**SUMMARY**

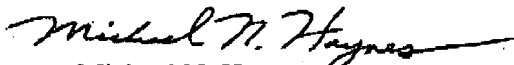
In view of the above, Applicant submits that all claims on appeal distinguish over the applied art and respectfully requests that the rejections of these claims should be reversed.

Applicant therefore respectfully requests that the Board of Patent Appeals and Interferences reverse the decision rejecting claims 1, 5, and 6 and direct that the application be passed to issue.

The Office is hereby authorized to charge any additional fees or credit any overpayments under 37 C.F.R. 1.16 or 1.17 to Deposit Account No. 50-2504. The Examiner is invited to contact the undersigned at 434-972-9988 to discuss any matter regarding this application.

Respectfully submitted,

Michael Haynes PLC



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Date: 15 June 2007

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PATENT

Serial No. 09/867,803

Attorney Docket No. 1005-006

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant(s) : Lawrence J. Choi et al.  
Serial No. : 09/867,803  
Filed : 31 May 2001  
For : METHOD AND SYSTEM FOR CLUSTERING  
OPTIMIZATION AND APPLICATIONS  
Art Unit : 2166  
Examiner : Khanh B. Pham

**Mail Stop Appeal Brief-Patents**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**APPENDIX A**

1. A computer-assisted method for evaluating a cluster assignment for an observation, comprising the activities of:

for each of a plurality of observations, obtaining a data set containing no more than one proxy value for each of a plurality of variables, each variable having a plurality of possible values, the data set also containing a cluster assignment for the observation, the cluster assignment identifying one cluster from a plurality of clusters;

for each observation from the plurality of observations, calculating a percent of proxy values for the plurality of variables that equals a mode of that observation's corresponding cluster's proxy values for the corresponding variables; and  
outputting the percent for each observation.

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2. A computer-assisted method for evaluating a cluster assignment for an observation, comprising the activities of:
  - for each of a plurality of observations, obtaining a data set containing no more than one proxy value for each of a plurality of variables, each variable having a plurality of possible values, the data set also containing a cluster assignment for the observation;
  - for each observation from the plurality of observations, estimating a purposeful probability that a particular possible value from the plurality of possible values for a particular variable will be purposefully provided by observations assigned to a particular cluster from a plurality of clusters; and
  - outputting each purposeful probability.
3. The method of claim 1, further comprising the activities of:
  - for each observation from the plurality of observations in each cluster from the plurality of clusters, calculating a serendipity probability for each possible value, the serendipity probability is a measure of a probability that an observation in a particular cluster will be randomly associated with any one of the plurality of possible values for a particular variable;
  - for each observation from the plurality of observations, calculating a ratio of the purposeful probability to the serendipity probability;
  - for each observation from the plurality of observations, calculating a logarithm of the ratio to obtain composition analysis score; and
  - outputting the composition analysis scores for each observation in each cluster.
4. The method of claim 1, further comprising the activities of:
  - for each observation from the plurality of observations, assuming that before the observation can be made, the observation has an equal probability of being in any identified cluster from the plurality of clusters;
  - for each observation from the plurality of observations, assuming that the purposeful probabilities are true;

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for each observation from the plurality of observations, using Bayes' Theorem to calculate a Bayes probability that a particular observation can be in each cluster conditional upon the observation's proxy value to each variable;

outputting the Bayes probability that each observation can be in each cluster.

5. A computer-readable medium containing instructions for activities comprising:

for each of a plurality of observations, obtaining a data set containing no more than one proxy value for each of a plurality of variables, each variable having a plurality of possible values, the data set also containing a cluster assignment for the observation, the cluster assignment identifying one cluster from a plurality of clusters;

for each observation from the plurality of observations, calculating a percent of proxy values for the plurality of variables that equals a mode of that observation's corresponding cluster's proxy values for the corresponding variables; and

outputting the percent for each observation.

6. An apparatus for evaluating a cluster assignment for an observation, comprising:

for each of a plurality of observations, means for obtaining a data set containing no more than one proxy value for each of a plurality of variables, each variable having a plurality of possible values, the data set also containing a cluster assignment for the observation, the cluster assignment identifying one cluster from a plurality of clusters;

for each observation from the plurality of observations, means for calculating a percent of proxy values for the plurality of variables that equals a mode of that observation's corresponding cluster's proxy values for the corresponding variables; and

means for outputting the percent for each observation.

7. A computer-readable medium containing instructions for activities comprising:

for each of a plurality of observations, obtaining a data set containing no more than one proxy value for each of a plurality of variables, each variable having a plurality of possible values, the data set also containing a cluster assignment for the observation;

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for each observation from the plurality of observations, estimating a purposeful probability that a particular possible value from the plurality of possible values for a particular variable will be purposefully provided by observations assigned to a particular cluster from a plurality of clusters; and  
outputting each purposeful probability.

8. An apparatus for evaluating a cluster assignment for an observation, comprising:

for each of a plurality of observations, means for obtaining a data set containing no more than one proxy value for each of a plurality of variables, each variable having a plurality of possible values, the data set also containing a cluster assignment for the observation;

for each observation from the plurality of observations, means for estimating a purposeful probability that a particular possible value from the plurality of possible values for a particular variable will be purposefully provided by observations assigned to a particular cluster from a plurality of clusters; and

means for outputting each purposeful probability.

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**APPENDIX B**

No evidence appendices are presented.

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**APPENDIX C**

There are no decisions in any related proceedings.